

(1 of 2)

PTO/SR/08A (10-01)

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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 1 of 3

Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
KL		6,422,941	7/23/2002	Thomer et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,575,761	11/19/1996	Hajianpour	
		5,437,607	8/1/1995	Taylor	
		5,436,622	7/25/1995	Gutman et al.	
		5,283,970	2/8/1994	Aigner	
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		5,175,459	12/29/1992	Danial et al.	
		5,165,897	11/24/1992	Johnson	
		5,022,384	6/11/1991	Freels	
		4,885,565	12/5/1989	Embach	
		4,484,191	11/20/1984	Vavra	
		4,464,117	8/7/1984	Foerst	
		4,333,070	6/1/1982	Barnes	
		4,262,549	4/21/1981	Schwellenbach	
		4,127,752	11/28/1978	Lowthorp	
KL		2,972,140	2/14/1961	Hirsch	

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
KL		JP	H2-185278		7/19/1990	Taito Corporation	
KL		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
KL		JP	H7-24147		1/27/1995	Sega Corporation	
KL		JP	H5-192449		8/3/1993	Taito Corporation	

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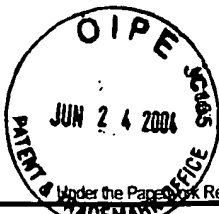
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Examiner Signature	<i>Kevin Chung</i>	Date Considered	9/11/05
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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
KC		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
KC		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

Examiner Signature	<i>Kent Chang</i>	Date Considered	9/11/05
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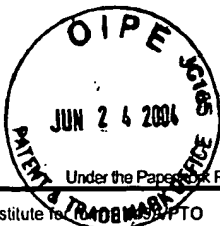
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KC		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1960 (23 pages).
KC		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
KC		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
KC		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.
KC		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance in Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

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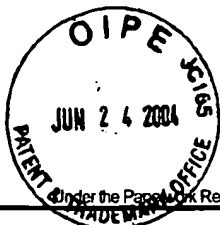
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Examiner Signature	<i>Kent C. Bell</i>	Date Considered	9/11/05
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Substitute for form 1449A/PTO

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Sheet 1 of 13

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Kc		6,131,097	10/2000	Peurach et al.	
		6,111,577	08/2000	Downs et al.	
		6,111,562	08/2000	Tarr et al.	
		6,088,019	07/2000	Rosenberg	
		6,084,587	07/2000	Rosenberg et al.	
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		5,767,839	06/1998	Rosenberg	
		5,757,358	05/1998	Oega	
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Kc		5,736,978	04/1998	Hasser et al.	

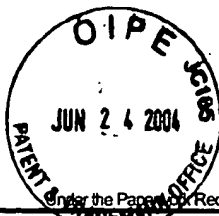
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **2** of **13****Complete if Known**

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

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Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
KC		5,734,373	03/1998	Rosenberg et al.	
		5,731,804	03/1998	Rosenberg	
		5,721,566	02/1998	Rosenberg et al.	
		5,709,219	01/1998	Chen et al.	
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		5,691,898	11/1997	Rosenberg	
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		5,477,237	12/1995	Parks	

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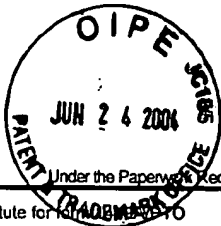
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KC		5,275,565	01/1994	Moncrief	

Examiner
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Kenneth C. Long

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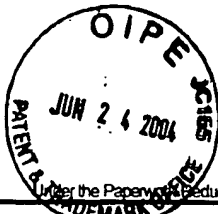
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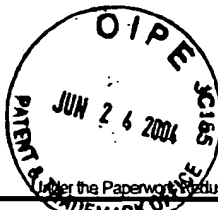
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 5 of 13

Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
KC		5,107,080	04/1992	Rosen	
		5,103,404	04/1992	McIntosh	
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KC		4,798,919	01/1989	Miessler et al.	

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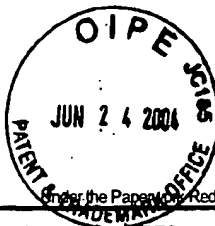
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **6** of **13****Complete if Known**

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
KC		4,791,934	12/1988	Brunnett	
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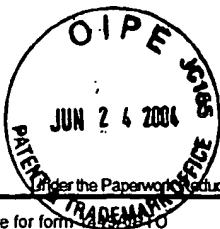
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STATEMENT BY APPLICANT**

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Sheet **7** of **13****Complete if Known**

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
KC		3,490,059	01/1970	Paulsen et al.	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
KC		WO	9502233		01/1995		
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		WO	9642078		12/1996		
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		WO	9719440		05/1997		
		WO	9731333		08/1997		
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		EP	0265011 A1		04/1988		
KC		EP	0607580 A1		07/1994		

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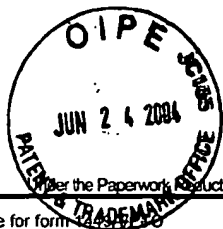
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Sheet 8 of 13

Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
KC		"Foot-Operated Mouse," IBM Technical Disclosure Bulletin, Apr. 1986, vol. 28, No. 11.
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		"Useful Technology for Your Idea File," Design News, Mar 7 1994, pp. 63.
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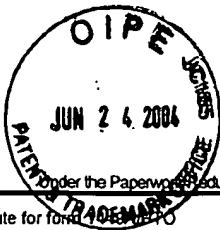
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 9 of 13

Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
KC		BURDEA, GRIGORE ET AL., "A Portable Dextrous Master with Force Feedback," Presence: Teleoperators and Virtual Environments, MIT Press, Jun. 1991.
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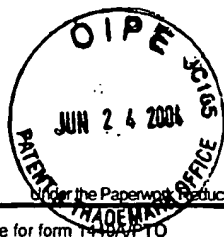
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 10 of 13

Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
KC		WATA, H. "Artificial Reality with Force-feedback: Development of Desktop Virtual Space with Compact Master Manipulator". Computer Graphics, vol. 24, No. 4, Aug. 1990, pp. 165-170.
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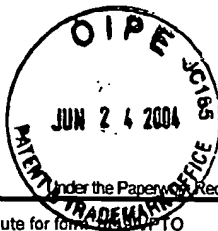
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 11 of 13

Complete if Known

Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
KC		MINSKY, MARGARET ET AL., "Feeling and Seeing: Issues in Force Display," ACM 1990, pp. 235-242.
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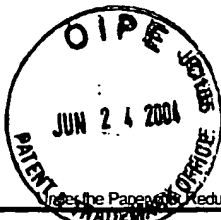
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Sheet **12** of **13**

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Application Number	09/992,123
Filing Date	November 13, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR019/02US

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Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
KC		ROSENBERG, LOUIS B., "Perceptual Design of a Virtual Rigid Surface Contact," Center for Design Research Stanford University, Air Force material Command, Apr. 1993, pp.1-41.
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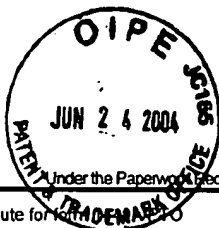
Examiner Signature	<i>Kent C. [Signature]</i>	Date Considered	9/11/05
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Sheet 13 of 13

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KC		WINEY III, C., "Computer Simulated Visual and Tactile Feedback As An Aid to Manipulator and Vehicle Control", MIT, 1981, pp. 1-80.
KC		YAMAKITA, M. ET AL., Tele-Virtual Reality of Dynamic Mechanical Model, IEEE Jul. 7-10, 1992, pp. 1103-1110.
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